

Claims

1. A node which newly joins a network formed by a plurality of nodes, the node comprising:

5 a virtual connection establisher unit configured to establish virtual connections with the plurality of nodes;

an average metric value calculator unit configured to calculate an average metric value of routes to the plurality of nodes via each of the virtual connections; and

10 a connection establisher unit configured to establish a connection with the node to which the virtual connection having the smallest average metric value is established.

2. The node according to claim 1, further comprising:

15 an acquirer unit configured to acquire node-node connection information of an adjacent node to any node forming the network, from the any node; and wherein

the average metric value calculator unit is configured to calculate the average metric value in accordance with the
20 node-node connection information.

3. The node according to claim 2, wherein

the node-node connection information includes a node ID for identifying the adjacent node, a metric value of a route
25 between the any node and the adjacent node, and the number of nodes adjacent to the adjacent node.

4. The node according to claim 3, wherein

the metric value includes at least one of the number of

hops, network bandwidth, communication costs, delay, load, MTU, or reliability.

5. The node according to claim 3, wherein

5 the acquirer unit is configured to notify, to the any node, a type of a metric value or a combination of metric values to be included in the node-node connection information.

6. A method for generating a network topology in which a new
10 node joins a network formed by a plurality of nodes, the method comprising:

establishing a virtual connection between the new node and each of the plurality of nodes;

calculating an average metric value of routes from the
15 new node to the plurality of nodes via each of the virtual connections; and

establishing a connection between the new node and the node to which the virtual connection having the smallest average metric value is established, so that the new node joins the
20 network.